ABSTRACT

An efficient implementation of n-point discrete cosine transform, n-point inverse discrete cosine transform, shape adaptive discrete cosine transform and shape adaptive inverse discrete cosine transform algorithms for multimedia compression and decompression optimization. An n-point DCT function is represented by a first equation having an input matrix, an output matrix and a matrix of predetermined values. An n-point IDCT function is represented by a second equation having an input matrix, an output matrix and a matrix of predetermined values. The multiplication operations within the matrix of predetermined values are paired, thereby reducing processor instructions. SIMD operations, MMX operations, VLSI implementation, single processor implementation, and vector processing are used to perform the algorithms.